

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of the claims in this application:

Claim 1. (Previously Presented) An audio signal processing method that performs virtual acoustic image localization processing of audio signals based on at least one type of information among position information, movement information, and localization information, the method comprising the steps of:

when there are a plurality of changes in said information within a prescribed unit of time, generating a single information change based on said plurality of information changes; and

performing virtual acoustic image localization processing for said audio signals based on said generated information change.

Claim 2. (Previously Presented) The audio signal processing method according to Claim 1, wherein

the step of generating said single information change is performed using only said information presented last within said time unit.

Claim 3. (Previously Presented) The audio signal processing method according to Claim 1, wherein

the step of generating said single information change is performed using only said information presented first within said time unit.

Claim 4. (Previously Presented) The audio signal processing method according to Claim 1, wherein

the step of generating said single information change is performed using a result of one of addition and averaging of said plurality of information within said time unit.

Claim 5. (Previously Presented) The audio signal processing method according to Claim 1, wherein

the step of generating said single information change is performed by estimation, based on said plurality of information within said time unit.

Claim 6. (Previously Presented) The audio signal processing method according to Claim 1, wherein

the step of generating said single information change is performed only for those information elements within said plurality of information elements in which the changes have exceeded a prescribed threshold within said time unit.

Claim 7. (Previously Presented) The audio signal processing method according to Claim 1, further comprising
imparting random fluctuations to said generated information change.

Claim 8. (Original) The audio signal processing method according to Claim 1, wherein

said audio signals are digital signals, and said time unit is an integral multiple of the sampling period of said audio signals.

Claim 9 (Original) The audio signal processing method according to Claim 1, wherein

said time unit is of variable length.

Claim 10. (Previously Presented) The audio signal processing method according to Claim 1, wherein

when there is no change in said information within said time unit, performing said virtual acoustic image localization processing based on said information change applied to the immediately preceding time unit.

Claim 11. (Original) The audio signal processing method according to Claim 1, wherein

when there is no change in said information within said time unit, said information change applied to said virtual acoustic image localization processing is not transmitted.

Claim 12. (Original) The audio signal processing method according to Claim 1, wherein

said information for said audio signals can be modified according to user operations.

Claim 13. (Previously Presented) An audio signal processing method that performs virtual acoustic image localization processing for audio signals having at least one type of information among position information, movement information and localization information, associated with time information and/or event information, based on said information, the method comprising the steps of:

when a plurality of said information elements are contained within a prescribed time unit, generates a single information change based on said plurality of information elements; and

performing virtual acoustic image localization processing for said audio signals based on this generated information change.

Claim 14. (Previously Presented) The audio signal processing

method according to Claim 13, wherein

said step of generating a single information change is performed using only a last one of said information elements presented within said time unit.

Claim 15. (Previously Presented) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change is performed using only a first one of said information elements presented within said time unit.

Claim 16. (Previously Presented) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change is performed by one of adding and averaging said plurality of information elements within said time unit.

Claim 17. (Previously Presented) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change is performed by estimation based on said plurality of information elements within said time unit.

Claim 18. (Previously Presented) The audio signal processing method according to Claim 13, wherein

said step of generating a single information change is performed only for those information elements in said plurality of information elements within said time unit in which the change exceeds a prescribed threshold.

Claim 19. (Previously Presented) The audio signal processing method according to Claim 13, further comprising a step of imparting random fluctuations to said generated information change.

Claim 20. (Original) The audio signal processing method according to Claim 13, wherein

said audio signals are digital signals, and said time unit is an integral multiple of the sampling period of said audio signals.

Claim 21. (Original) 21. The audio signal processing method according to Claim 13, wherein

said time unit is of variable length.

Claim 22. (Previously Presented) The audio signal processing method according to Claim 13, wherein

when there is no change in said information within said time

unit, said step of performing virtual acoustic image localization processing is performed based on said information change applied to the immediately preceding time unit.

Claim 23. The audio signal processing method according to Claim 13, wherein

when there is no change in said information within said time unit, said information change applied to said virtual acoustic image localization processing is not transmitted.

Claim 24. (Original) The audio signal processing method according to Claim 13, wherein

said information possessed by said audio signals can be modified according to user operations.

Claim 25. (Previously Presented) An audio signal processing method in which, when a plurality of information changes of at least one information type among position information, movement information, and localization information are applied to audio signals within a prescribed time unit, the method comprising the steps of:

generating a single information change based on this plurality of information changes;

performing virtual acoustic image localization processing in advance on said audio signals based on a plurality of localization positions of the audio signals;

and based on the generated single information change, reading out from storage means in which are stored a plurality of synthesized audio signals obtained from the localization processing, at least one of said synthesized audio signals.

Claim 26. (Previously Presented) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change is performed using only a last one of said information elements presented within said time unit.

Claim 27. (Previously Presented) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change is performed using only a first one of said information elements presented within said time unit.

Claim 28. (Previously Presented) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change generation

by one of adding and averaging said plurality of information elements within said time unit.

Claim 29. (Previously Presented) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change is performed by estimation based on said plurality of information elements within said time unit.

Claim 30. (Previously Presented) The audio signal processing method according to Claim 25, wherein

said step of generating a single information change is performed only for those information elements in said plurality of information elements within said time unit change in which the change exceeds a prescribed threshold.

Claim 31. (Previously Presented) The audio signal processing method according to Claim 25, further comprising a step of imparting random fluctuations to said generated information change.

Claim 32. (Original) The audio signal processing method according to Claim 25, wherein

said audio signals are digital signals, and said time unit is an integral multiple of the sampling period of said audio signals.

Claim 33. (Original) The audio signal processing method according to Claim 25, wherein

said time unit is of variable length.

Claim 34. (Previously Presented) The audio signal processing method according to Claim 25, wherein

when there is no change in said information within said time unit, said step of performing virtual acoustic image localization processing is performed based on said information change applied to an immediately preceding time unit.

Claim 35. (Original) The audio signal processing method according to Claim 25, wherein

when there is no change in said information within said time unit, said information change applied to said virtual acoustic image localization processing is not transmitted.

Claim 36. (Original) The audio signal processing method according to Claim 25, wherein

said information possessed by said audio signals can be modified according to user operations.

Claim 37. (Previously Presented) An audio signal processing apparatus, comprising

an audio signal processing unit for performing virtual acoustic image localization processing of audio signals based on at least one information type among position information, movement information, and localization information; and

information change generation means for generating, when a plurality of changes are made to said information within a prescribed time unit, one information change based on said plurality of information changes, wherein

said audio processing unit is controlled based on the information change generated by said information change generation means, to perform virtual acoustic image localization processing of said audio signals.

Claim 38. (Previously Presented) An audio signal processing apparatus, comprising:

an audio processing unit for performing virtual acoustic image localization processing of audio signals having at least one type of information among position information, movement information, and localization information, associated with time information and/or event information, based on said information; and

information change generation means for generating, when there

are a plurality of said information changes within a prescribed time unit, one information change based on said plurality of information changes, wherein

said audio processing unit is controlled based on the information change generated by said information change generation means, to perform virtual acoustic image localization processing of said audio signals.

Claim 39. (Previously Presented) An audio signal processing apparatus, comprising:

an information change generation means for generating, when a plurality of changes in at least one type of information for audio signals among position information, movement information, and localization information are requested within a prescribed time unit, one information change based on this plurality of information changes; and

storage means in which are stored a plurality of synthesized audio signals obtained from the localized processing, wherein

virtual acoustic image localization processing is performed in advance on said audio signals based on a plurality of localization positions of the audio signals, and based on an information change generated by said information change generation means, from said storage means in which are stored a plurality of synthesized audio

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signals obtained from this localization processing, at least one of said synthesized audio signals are read out and reproduced.